

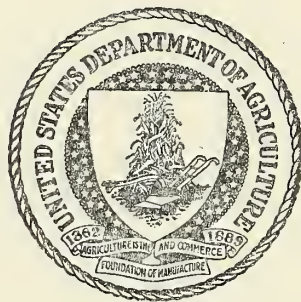
## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



A56.7  
Ag8P  
Prelim.

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
LIBRARY



BOOK NUMBER  
914142

A56.7  
Ag8P  
Prelim.

U. S. DEPARTMENT OF AGRICULTURE

Washington, D.C.

POLICY AND PROCEDURE FOR DEVELOPMENT OF  
NATIONAL INVENTORY OF SOIL AND WATER CONSERVATION NEEDS

For Review Purposes



Prepared by the Department Committee:

Agricultural Conservation Program Service  
Agricultural Research Service  
Commodity Stabilization Service  
Federal Extension Service  
Farmers Home Administration  
Forest Service  
Soil Conservation Service

June 1956

# NATIONAL INVENTORY OF SOIL AND WATER CONSERVATION NEEDS

## Table of Contents

	<u>Page No.</u>
I. General Policy	1
Scope	3
Organization and Cooperation	4
Revisions	4
Table 1 - Average 1951-53 harvested acreages, and harvested acreage needed to balance attainable production with projected requirements for specified farm products in 1975, United States.	5
Table 2 - Total cropland in major types of use, acreage in 1947-49 and 1949 and projection of estimated acreage to 1975 by regions.	6
Table 3 - Pasture and grazing land, acreage in 1950 and projection of estimated acreage to 1975.	8
II. Procedure	
A. General Principles	9
B. Organization for State and County Work	10
C. Functions of the State Committee	10
D. Operations of County Committees	11
1. Organization	11
2. Determination of land ownership and use	11
3. Estimating Probable Land Use Adjustments	12
4. Estimating Needs for Conservation Practices	14
a. Summary of Costs by Types of Problems	16
E. Transmittal, Review and Clearance of the Inventory	17
III. Definitions, Forms and Worksheets	19



## NATIONAL INVENTORY OF SOIL AND WATER CONSERVATION NEEDS

I. General Policy

This policy is developed within the framework of the Secretary's Memorandum No. 1396.

OBJECTIVE: The Department of Agriculture has constant need for current information on conservation needs that will aid in carrying out its responsibilities in providing for adequate conservation of the Nation's soil and water resources. There is need for a systematic collection of facts, for each county in the United States and for appropriate subdivisions of the Territories, and for watersheds and river basins, regarding the soil and water resources, the problems in their use, and an estimate of the measures necessary to maintain and improve their service for all the people in line with national objectives. The purpose of this Inventory, which is known as the National Inventory of Soil and Water Conservation Needs, is to assemble such facts as provided for in the Secretary's Memorandum No. 1396.

BASIC ECONOMIC FRAMEWORK: The following assumptions are made for administrative use in connection with the National Inventory of Soil and Water Conservation Needs. It is felt that these will provide for greater uniformity and accuracy in the estimates. Specifically, they are as follows:

1. There will be a population increase in the United States for the period 1953 to 1975 from 162 to about 210 million.
2. Real incomes will rise 35 to 55 percent per person by 1975.
3. The projected increase in population and moderate rise in per capita consumption of farm products (other than timber) will increase requirements in 1975 to about 40 percent above 1953. With production in excess of utilization in recent years, an increase in farm output of around 30 percent will meet projected requirements.
4. Total acreage of crops, including cropland pasture, will be about 6 percent greater in 1975 than in 1951-53.<sup>1/</sup>
5. With this cropland acreage and fuller adoption by farmers of available technical knowledge in crop production, it appears that market demands in 1975 can be met if certain adjustments are made. Significant shifts will

---

<sup>1/</sup> Agricultural Land Resources in the United States, by Hugh H. Wooten and James R. Anderson, U.S.D.A. Agriculture Information Bulletin No. 140, June 1955. Farm Output - Past Changes and Projected Needs, by Glen T. Barton and Robert O. Rogers (In process of clearance for publication by U.S.D.A.)

be required in the crops grown.<sup>2/</sup> There will also be need for shifts in major land uses, including such changes as the clearing, draining, and irrigating of land for cropland and pasture, reforestation of less productive croplands, and loss of agricultural lands to non-agricultural uses.

6. The projected increase of population and growth of the Nation's economy will expand the demand for timber products. The 1975 demand for wood products in total may be as much as 30 percent above 1952 consumption; the demand at year 2000 may be as much as 80 percent above 1952 consumption.<sup>3/</sup>

7. To meet these timber requirements, more intensive management of all available commercial forest land will be needed. It will be imperative that commercial forest lands presently nonstocked or poorly stocked be restored to productive condition. The more critical problems will relate chiefly to increasing the growth of softwood sawtimber, the utilization of low grade hardwood, and the improvement of productivity of farm and other small forest land ownerships.

8. Demands for recreation facilities and for wildlife will increase with the increase of population.

9. To meet the water requirements of the increased population, which will be accompanied by expansion of industry, intensified agriculture, and other uses, there will be increased competition for available water supplies. This will result in an expansion of water resource development.

10. Cost of installing conservation measures will continue at about the 1956 level.

11. Landowners and operators will be expected to spend no more on conservation measures than will yield a reasonable return to their capital and labor.

12. Certain conservation measures that prevent serious, permanent loss to soil and water resources may be so much in the public interest as to justify expenditures in an area in excess of returns to landowners and operators, and even to the Nation in the foreseeable future.

13. Public programs of assistance to soil and water conservation will be continued at about the present level.

---

<sup>2/</sup> Tables 1, 2, and 3 show, respectively, estimated changes (between 1951-53 and 1975) in the nationwide acreages needed for production of various crops and of pasture forage; total cropland by major types of use (1949 and 1951-53 and projection of estimated acreage to 1975) by agricultural regions, and pasture and grazing land (1950 and projections of estimated acreage to 1975) by agricultural regions.

<sup>3/</sup> Forest Service, U.S.D.A., "Future Domestic Requirements for Timber", TIMBER RESOURCE REVIEW, Chapter VI (Preliminary Review Draft), Washington, D.C., October 1955.



SCOPE: The Inventory of Needs will be developed for all land (except as covered in procedure statement) in each county in the United States and appropriate subdivisions of the Territories. Within counties or Territorial subdivisions the information and estimates will be recorded separately for privately owned land, federally owned land, and other publicly owned land. County data will be combined into state and national summaries. The Inventory will be developed from basic data regarding:

1. Acreage with various kinds of soil, classified by degree of slope, erosion conditions or hazard, and the impact of water on the use of land.
2. Present acreage of land in various uses -- cropland, open pasture and range, forest (grazed and not grazed), and land in miscellaneous other uses.
3. Present acreage of land in various ownerships and management classes -- land in farms and privately owned land not in farms; state, county and municipal; and federal.

On the basis of these physical data and with due regard to the economic framework as indicated above as to prospective future needs for products and services of land, estimates will be made indicating:

1. The desirable and practicable land-use adjustments that can be expected by the end of the forthcoming 10-year period.
2. The needs (on the adjusted total acreages) for land and water conservation practices, measures, and structures. With regard to water, the needs will include the means for reduction of water damage to land, for more efficient on-site use of water, for disposal of surplus water, for incidental reduction of downstream flood hazards, and (where desirable and feasible) for increasing the water yield from forest or brush-covered land.
3. The costs of installing such land and water conservation measures, practices, and structures.

These estimates will be based on the locally applicable technical information and experience, with due regard to the basic economic framework, recommended standards and practices for conservation, and development of soil, water, pasture and range, forest, recreation, and wildlife resources.

This policy and procedural statement is concerned with the portion of the Inventory for which data will be compiled by counties. The inventory of many water management needs which can be met only by organized local, state and federal projects, requires surveys of watersheds or other areas. Such inventory data will be compiled on other than a county basis. The inventory of such water management needs will be covered in a subsequent policy statement.

ORGANIZATION AND COOPERATION: A Department Soil and Water Conservation Needs Committee, comprised of one representative from each of the following agencies, has been established: Agricultural Conservation Program Service, Agricultural Research Service, Commodity Stabilization Service, Federal Extension Service, Farmers Home Administration, Forest Service, and Soil Conservation Service. This committee, under the leadership of a chairman from the SCS, will develop guiding policies and procedures, will furnish economic assumptions, and will make periodic reviews of progress and furnish guidance in the cooperative effort. The Forest Service will solicit the cooperation of state forestry agencies in discharging its responsibility for the adequacy of the physical data on forestry on non-federally owned forest lands.

State and Territorial Soil and Water Conservation Needs Committees will be established. (Hereafter, these will be referred to as State Committees.) Their membership will consist of representatives of each of the Department agencies noted above, including State Agricultural Stabilization and Conservation Committees. The SCS will invite representation on the Committee from the State Agricultural Experiment Station, the State Extension Service, the State forestry agency and from other agencies and groups who may be able to provide assistance and otherwise contribute to the Inventory.

The Inventory will be developed by a committee in each county with supervision, assistance, and coordination furnished by State and Department Committees.

Estimates for public lands will be made by the agencies administering such lands. The Department of Agriculture will endeavor to obtain the cooperation of other Departments who administer land.

The State Committee will develop a work plan for making the Inventory and will submit it for review and consideration by the Department Committee and the Assistant Secretary, Federal-State Relations. Such plan will be developed by the Department Committee. It should establish overall guidance, priorities, organization and responsibilities for making the Inventory in the counties, including procedures, standards and criteria. This should achieve comparability in methods of estimating measures and unit and total costs of carrying out conservation work in similar areas within the State. County Inventory data will be reviewed by the State Committee. State Inventories will, in turn, be reviewed by the Department Committee.

REVISIONS: The goal for initial completion of the National Inventory of Soil and Water Conservation Needs will be three years. It is to be kept current; therefore, periodic review of the information and revision will be made as needed.



Working data  
Tentative and subject  
to revision

Table 1. - Average 1951-53 harvested acreages, and harvested acreage needed to balance attainable production with projected requirements for specified farm products in 1975, United States

Crop	1951-53	1975 required <u>1/</u>
	<u>Million acres</u>	<u>Million acres</u>
<u>Feed grains</u>		
Corn, all	80.8	73.7
Grain sorghum	6.6	10.0
Other feed grains <u>2/</u>	46.9	47.4
<u>Hay, all</u>	74.3	88.7
<u>Oil crops</u>		
Soybeans for beans <u>3/</u>	14.2	18.0
Peanuts, picked and threshed	1.7	1.2
Flaxseed	3.9	3.5
<u>Food grains</u>		
Wheat, all	66.7	49.0
Other food grains <u>4/</u>	3.5	3.6
<u>Other food crops</u> <u>5/</u>	3.1	2.8
<u>Tobacco</u>	1.7	2.1
<u>Cotton</u>	25.7	16.2
<u>Total of specified crops</u>	329.1	316.2
<u>Cropland pasture</u>	<u>6/</u> 69.3	104.0
<u>Total of specified crops and cropland pasture</u>	<u>6/</u> <u>7/</u> 398.4	<u>7/</u> 420.2

- 1/ Projected production requirements in 1975 divided by estimates of yields attainable from known technology.
- 2/ Oats and barley.
- 3/ Assuming soybeans continue to be the chief source of high-protein feed.
- 4/ Rice and rye.
- 5/ Potatoes, sweetpotatoes, and dry beans.
- 6/ Cropland pasture acreage for 1949.
- 7/ Does not include harvested acreage of some minor crops. Also excludes acreages in crop failure, summer fallow, and cropland in soil-improvement crops and idle.

Table 2. - Total cropland in major types of use, acreage in 1947-49 and 1949 and projection of estimated acreage to 1975 by regions. 1/

Region	: Cropland : used for : crops <u>2/</u>		: Cropland used : only for : pasture <u>3/</u>		: Cropland in soil: : improvement : crops and idle : <u>4/</u>		: Total : cropland : <u>5/</u>	
	1947-49	1975	1949	1975	1947-49	1975	1949	1975
	: Million : acres	: Million : acres	: Million : acres	: Million : acres	: Million : acres	: Million : acres	: Million : acres	: Million : acres
Northeastern	: 16	: 17	: 4	: 4	: 2	: 2	: 22	: 23
North Central	:	:	:	:	:	:	:	:
Corn Belt	: 78	: 81	: 15	: 14	: 3	: 4	: 96	: 99
Lake States	: 38	: 40	: 6	: 6	: 2	: 3	: 46	: 49
Northern Plains	: 91	: 94	: 4	: 5	: 6	: 4	: 101	: 103
Total	: 207	: 215	: 25	: 25	: 11	: 11	: 243	: 251
Southern	:	:	:	:	:	:	:	:
Appalachian <u>6/</u>	: 24	: 24	: 12	: 14	: 4	: 3	: 40	: 41
Southeastern	: 19	: 20	: 4	: 8	: 5	: 3	: 28	: 31
Mississippi Delta	: 16	: 19	: 6	: 7	: 2	: 2	: 24	: 28
Southern Plains	: 44	: 47	: 9	: 8	: 1	: 4	: 54	: 59
Total	: 103	: 110	: 31	: 37	: 12	: 12	: 146	: 159
Mountain	: 33	: 37	: 4	: 5	: 3	: 3	: 40	: 45
Pacific	: 20	: 24	: 5	: 4	: 2	: 2	: 27	: 30
United States	: 379	: 403	: 69	: 75	: 30	: 30	: 478	: 508

- 1/ Projected acreage for 1975 as reported in U. S. Dept. of Agriculture Information Bulletin No. 140, pp. 13, 25 and 50. The net projected acreage of new cropland and rotation pasture acreage is based on data concerning shifts in land use and new land-development programs from various public agencies engaged in land-development activities. Although the acreage for any one year may vary from the average, for working purposes it was assumed that there would be a uniform increase per year between 1947-49 and 1960 and from 1960 to 1975. The projection is made under the assumption that the 1935-54 rates of land development will continue to 1975. If there is a material change in the rate of development, there would, of course, be a change in the total acreage of cropland.
- 2/ Cropland harvested, crop failure, and summer fallow. In the base period 1947-49, a total of 379 million acres were used for cultivated crops, excluding rotation pasture and soil-improvement crops. The projected acreage of cropland used for cultivated crops in 1975 is 403 million acres, or an increase of 24 million over the 379 million acres used in 1947-49. In addition, the projected cropland acreage for 1975 includes 75 million acres of cropland used for pasture, and 30 million acres in soil-improvement crops and temporarily idle.
- 3/ Cropland used only for pasture during the year, including rotation pasture, but excluding aftermath or crop-residue pastures.
- 4/ Cropland in soil-improvement crops and cropland idle for the year.
- 5/ Total cropland available or sum of the cropland used for crops, cropland used for pasture, and cropland in soil-improvement crops and idle.
- 6/ Includes Delaware, Maryland, and District of Columbia.



Table 3 - Pasture and grazing land, acreage in 1950 and projection of estimated acreage to 1975, by regions. 1/

Region	Open permanent		Woodland		Total		Grazing land		Total acreage of	
	pasture in farms 2/	acres	pasture in farms	acres	pasture in farms	acres	not in farms 3/	acres	pasture land and grazing land 4/	acres
1950	1975	1950	1975	1950	1975	1950	1975	1950	1975	1975
Million acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres
Northeastern	7	8	4	4	11	12	3	2	14	14
North Central										
Corn Belt	17	16	13	12	30	28	5	4	35	32
Lake States	6	8	10	9	16	17	6	5	22	22
Northern Plains	71	70	2	2	73	72	7	5	80	77
Total	94	94	25	23	119	117	18	14	137	131
Southern										
Appalachian 5/	9	12	8	9	17	21	12	11	29	32
Southeastern	7	9	17	17	24	26	25	25	49	51
Mississippi Delta	5	7	9	9	14	16	28	25	42	41
Southern Plains	85	82	36	30	121	112	16	15	137	127
Total	106	110	70	65	176	175	81	76	257	251
Mountain	180	175	24	22	204	197	227	225	431	422
Pacific	29	28	12	11	41	39	71	68	112	107
TOTAL	416	415	135	125	551	540	400	385	951	925

- 1/ Projected acreage for 1975 as reported in U.S. Dept. of Agriculture Information Bul. No. 140, pp. 25 and 52
- 2/ Open permanent pasture, or grassland pasture in farms exclusive of cropland used for pasture or rotation pasture.
- 3/ Grassland and woodland used for grazing not in farms.
- 4/ Total pasture and grazing land in farms and not in farms, including grassland and woodland used for pasture, exclusive of cropland used for pasture.
- 5/ Includes Delaware, Maryland, and District of Columbia.

## II. PROCEDURE

### A. General Principles

The National Inventory of Soil and Water Conservation Needs (hereafter called Inventory) will be based on a systematic collection of facts on the soil, water, forest, and pasture resources and problems in their use. The initial Inventory will be developed within a three-year period and subsequently kept current by revisions as conservation measures are installed and as new knowledge is developed. The Inventory will not include research needs in the field of soil and water conservation.

Inventory data will be collected for each county and combined to provide State and National totals. The estimates of kind and amount of conservation measures needed and costs of installation will be shown separately for private land (including all land in farms) for non-Federal public land, and for Federal land.

For private land, State and local public land, and Federal land under lease and operated as part of farms, the Inventory will be developed in the following steps:

1. Estimated present land use
2. Estimated probable land use adjustments over the next ten years
3. Estimated kinds and amount of conservation practices needed, according to adjusted land uses, and
4. Estimated costs of installing needed practices

For Federal land not under lease and operated as part of farms, and under administrative jurisdiction of the Department, the administering agency will be responsible for developing the Inventory on lands under its jurisdiction. The methods used by these agencies for developing this part of the Inventory will be such that the final estimates of practices needed and of costs can be summarized on Form N-6 as hereafter provided.

Cooperation of other Federal, State and local agencies administering land will be solicited. The participation suggested to such agencies will be on a basis similar to that indicated in the paragraph above.

Inventory data will be collected and developed for each county and combined to provide State and National totals.

The Soil Conservation Service will be responsible for collecting basic physical data on soil and water on non-federally owned lands. The Forest Service will be responsible for the adequacy of the physical data on forestry on non-federally owned lands.

All agencies of the Department interested in soil and water resource development will cooperate in the development of the Inventory. This cooperative effort is approved by the Secretary on the basis that it will be carried out within existing budgets and organizations. Local and State agencies as well as other Federal agencies and voluntary groups concerned with conservation will also be invited to participate.



## B. Organization for State and County Work

Each participating USDA agency will name a representative on the State Committee. In consultation with the designated representatives of The Department of Agriculture agencies the State conservationist will invite State and other agencies interested in soil and water conservation to participate on the committee. The State Agricultural Experiment Station, State Agricultural Extension Service, and the State forestry agency are to be invited.

The State conservationist will be responsible for organizing the State committee.

The State committee will provide for the organization of county soil and water conservation needs committees to complete the inventory in each county.

County committees should include representatives of Federal, State and local agencies or organizations concerned with soil, water, forest, range, and wildlife conservation in the county.

## C. Functions of the State Committee

The State committee will be responsible for planning and supervising the development of the Inventory for the counties of the State and for compiling State summaries. In discharging these responsibilities the State committee will:

- (1) Prepare and submit to the Administrator, SCS, for Departmental review, a State plan following the prescribed outline (sample attached) for carrying on the work, recognizing that
  - (a) The Forest Service has completed the inventory on the National forests and other land it administers,
  - (b) The Department in cooperation with State Experiment Stations has made detailed soil surveys covering large areas in various States,
  - (c) both Soil Conservation Service and Agricultural Conservation Program Service have developed estimates of conservation needs for some areas,
  - (d) studies have been made on certain river basins and watersheds by Inter-Agency committees, and
  - (e) studies of land ownership and use have been made by Agricultural Research Service.
- (2) Appraise the adequacy of available physical data and conservation needs estimates on soil, water, forest, pasture and range resources for use in making the Inventory and determine what additional data are needed to meet the requirements of the Inventory.
- (3) Prepare State list of conservation practices from the National list furnished by the Department committee.
- (4) Estimating standards and criteria that will meet conditions and practices peculiar to particular areas or situations within the State.

- (5) Instruct county committees in the use of technical guides, definitions, standards, and procedures.
- (6) Establish priorities of work by counties and supervise and periodically review progress and accomplishment in the development of county inventories.
- (7) Review and compare county inventories for consistency. If it appears that information developed is not on a comparable basis with other counties or that the procedures or the State plan have not been adequately followed, revisions will be required.
- (8) Compile summaries (as instructed later) and submit them to the Administrator Soil Conservation Service for Departmental review, approval, and use in compiling the Inventory of soil and water conservation needs.

#### D. Operations of County Committees

1. Organization. The representative of the Soil Conservation Service assigned to the county (or a member of the county committee designated in the State plan) will be chairman of the county committee and responsible for organizing the work and completing the conservation needs inventory in each county. He will call together the representatives of the participating agencies of the Department as prescribed in the State plan and organize the county committee. This committee will decide which other local agencies or organizations are sufficiently interested in the conservation of soil and water resources to be invited to participate. The chairman will invite each agency or organization selected to designate a representative.
2. Determination of land ownership and Use. The county committee will classify the land into the following ownerships on each of the sample areas selected for the soil survey.

Land in farms

Privately owned land not in farms

State, county and municipally owned land not in farms

Federally owned land not in farms

Miscellaneous (Land for which conservation needs will not be estimated)

Delineation of these classes for sampling units will be made on county maps showing the sample areas from information available to committee members. This will be supplemented by field checks to assure their accuracy.

Form N-1 "Present and Adjusted Uses of Land by ownership" is provided for State and county use for recording distribution of total land area by ownership and use. The State Committee will enter in the box at the top of Form N-1 the total land area of the county as shown in the 1954 Census of Agriculture.



Data on the acreage of forest land in the various states are available from the TIMBER RESOURCE REVIEW prepared and published by the Forest Service. For some States, more recent Forest Survey information on forest land acreage is available. The forest land acreage in all counties of a State (in column b of Form N-1) should equal the acreage shown in the TIMBER RESOURCE REVIEW, or a subsequent Forest Survey report. The Forest Service in cooperation with the State forestry agency will provide the State committee with estimates for each county covering the forest land items in column b of Form N-1.

Using these estimates and all other data available, the State committee will enter preliminary acreage figures for all the items of column b, Form N-1. The State Committee will inform the county committee of the sources of data used in arriving at these preliminary figures.

The county committee will review figures in Column b and after completion of the soil survey and consideration of other available data will enter in column c the acreages which most nearly represent the present status of ownership and use in the county. Column d will not be filled in until land use adjustments have been estimated and recorded on Form N-2. When the county committee has filled in column c a copy of Form N-1 will be sent to the State committee for review and approval. When approved, acreages in column c will be used as "present acreage" for the different ownerships and uses in the inventory.

### 3. Estimating Probable Land Use Adjustments

The tables of estimated land use adjustments will be made on Form N-2 or on modifications of it in counties where the State committee has approved the use of subdivisions of some land uses that will be of significance in making the Inventory and for which data are available. Basic data for making these estimates will be obtained from the soil survey.

The estimates are to be made by land capability units, using a separate block on Form N-2 for each one. (A land capability unit is a group of soils that are nearly alike in potential for agricultural use, plant growth and responses to similar treatment and management). In the space in column a Form N-2 show the identification symbol and a short description of the land capability unit.

The land uses to be considered are shown in the lines under the heading "adjusted to" in column b, and at the top of succeeding columns. A line should be used to record estimated conversion of land to urban or other miscellaneous uses. The figures for filling in the boxes in line 1 of each block (the present acreage of each land use in the land capability unit) will come from the soil survey data for the county revised, if necessary, as described below.



Subsequent lines will be used to record adjustments expected and the anticipated future use of the acreage now in each use. The total of the adjusted figures in each column, therefore, must equal the present land use figure in line 1, while the total of the figures in each line, after line 1, will be the estimated future acreage for each land use. In the example shown for land in farms, column c shows that there are 5000 acres of cropland in land capability unit IIIe5. It is expected that 3500 acres of this will remain in cropland so this figure is recorded in line 2 under cropland. Similarly it is estimated that 700 acres now in crops will go to pasture, 500 acres will go to forest and 300 acres will be taken over for urban, industrial or other miscellaneous uses. These estimates are recorded in the appropriate lines in column c. The acreage in other uses as shown in succeeding columns is handled in the same manner. This same process will be followed for each land capability unit in each ownership and use. The figures of estimated acreage adjustments for each use shown in column g will be transferred to column b of Form N-3 for use in estimating needed conservation practices.

In cases where the total figure for any land use as agreed upon by the county committee and shown in column c Form N-1 does not agree with that of the soil survey data for that land use, the estimated land use adjustments will be derived from soil survey figures revised by the following procedure. The figure for a land use in column c Form N-1 will be divided by the corresponding figure from the soil survey to obtain a factor. The acreage of each land capability unit within that land use as obtained by the soil survey will be multiplied by this factor and the result entered in the box in line 1 Form N-2 for that land capability unit and land use. This process will be followed separately for each ownership. The revised figures obtained by this method will be used as the basis for estimating land use adjustments according to the method outlined above.

Each N-2 will be summarized by land capability classes and subclasses with a final block showing a total for all land in each ownership. Column d of Form N-1 will be filled out from these summaries and data obtained from Federal land management agencies. Similar summaries will be made for the entire county.

In order to show land use according to suitability for cropland subtotals will be made for Classes I through IV, and for V through VIII for land in farms.

4. Estimating Needs for Conservation Practices.\*

The estimated needs for conservation practices (kind of practice and quantity in the appropriate units of measurement) for all land covered by the soil survey will be developed by use of Form N-3, "Estimates of Needed Conservation Practices."

The State Committee will provide the county committees with an approved State List of Conservation Practices. Technical guides and standards will be developed for local use in deciding which practices are applicable in the solution of various conservation problems. In using the list of practices with the technical guides and standards, the county committee will consider alternate practices which would accomplish similar results on a given area of land, but duplication of alternate practices on the same area of land will be avoided. This does not apply to complementary practices where such are needed. The practices selected will be those which best meet local requirements of the current and prospective kinds of farming.

Where special conservation problems exist, that will not be adequately taken care of by any of the practices or combination of practices on the State List, the county committee may estimate the need for other practices. These practices should not be a local modification of one or more practices on the State List. The county committee will describe and justify these and other such practices (if any) in its report to the State Committee.

For those conservation practices commonly measured in more than one way (for example: miles of terrace and acres benefited by such terracing; cubic yards of earth removed in open ditching and acres benefited by such ditching) quantity should be expressed in the two or more units of measure commonly used.

One set of Forms N-3 will be used for each land use in each type of ownership for all land covered by the soil survey. A separate line in column a of Form N-3 will be used for entry of each land Capability Unit within each land-use and ownership class. The acreages entered in Form N-3 column b will be the corresponding "adjusted acreage total" from column g of Form N-2.

The first step will be to enter in the Form N-3 column immediately beyond those occupied by the land-use adjustment practices, the acreage estimates of land that will require no conservation practices. On cropland this will include the land in Capability Class I. In other land uses it may include land in any capability class.

---

\* The term "practices" as used in this section includes all conservation practices, land treatments, management measures, structures, and other measures applicable in soil and water conservation.



After excluding the acreage that requires no conservation practices, the county committee will estimate the quantities of conservation practices needed on the remaining acreage. These will include the amount of practices to accomplish the estimated probable adjustments in land use and any conservation practices needed on such land after adjustments in use.

The estimated quantity of conservation practices still needed will be entered in the subsequent columns of Form N-3. One or more columns (depending on the units of measurements applicable) will be required for each practice. Sufficient columns should be provided in Form N-3 to record all the practices for which estimates are made. At the foot of the last columns, in the line below the last Land Capability Unit, enter the estimated quantity of practices needed--such as farm ponds stream bank protection and the like--which are not associated with any one Land Capability Unit. For these, there would be no entry of acres in column b of Form N-1 and no entry for acres not requiring conservation practices.

The final estimates of the amounts of conservation practices needed on cropland, pasture, and range will be made without regard to any conservation practices already installed. The procedure for taking these into account will be described below.

The estimates of the amounts of structural or enduring practices (such as gully plugs, sodded waterways, and terraces) should reflect the need on all the acres that require such practices. These should be grouped in adjacent columns of Form N-3 so that the cost of all the enduring practices can later be estimated separately.

The estimated needs for periodically recurring practices will be made in terms of average annual requirement and average annual acreage treated so that cost of all such practices can later be grouped with costs of the annually recurring practices. These will also be grouped in adjacent columns of Form N-3 and clearly labeled.

The estimated amount of annual practices needed and the acreages to which they apply will also be shown in adjacent columns of Form N-3 and clearly labeled.

The last three lines of the last page of Form N-3 table will have the following entries in column a:

- a. Gross amount of practices needed
- b. Adequate structural and enduring practices in use
- c. Estimated net amounts of practices yet to be installed

Total all columns and enter totals on line with stub entry "Gross amount of practices needed."

Estimates of adequate structural or enduring types of practices in use will be made and the units of such practices will be entered in the appropriate line and column. But none of these entries will be made in the columns occupied by estimates for recurring or annual practices. Estimates of practices and treatments now on the land will be considered to the extent that they contribute to completion of the total conservation job. The amounts of these practices already installed will be estimated by the county committee from SCS, FS, and ACP records and from the knowledge of committee members of conditions in the county.

The remaining amounts of each practice yet to be installed will be calculated by subtracting from the estimates of total needs the amounts currently on the land. The total amounts yet to be installed of annual management and periodically recurring practices will be the same as the total estimated needs.

The estimates of the amounts of conservation practices needed on forest land and on land classified as "idle and other" will be the net amount yet to be installed.

The last column, or columns, of Form N-3 for these land uses will be headed "Practices unrelated to Land Capability Units.". The estimated amounts of such practices needed will be entered on the line below the last Land Capability Unit. These entries will be the county committee's estimate of need for conservation practices not directly related to land capability units such as road bank and stream bank protection, and certain forestry practices.

Total all columns and enter totals on the last line "Estimated net amount of practices yet to be installed."

The estimates of net amounts of needed practices will be summarized by land capability classes and subclasses for each table and for each land use for the county.

Summary of Costs by Types of Problems. The summary of costs by types of problems will be prepared in three parts on Forms N-4, N-5, and N-6.

Form N-4 will be for land in farms and privately owned land not in farms. (A and B on Form N-1)

Form N-5 will be for State, county and municipally owned land not in farms. (C on N-1)

Form N-6 will be for Federally owned lands not in farms managed by the various Department agencies (D on N-1)



Information in comparable form will be solicited from other land management agencies.

Agencies responsible for the management of Federal lands not in farms will furnish the county committee completed forms N-6.

Conservation practices will be inventoried on the basis of the conservation problems that they are intended to deal with.

Worksheets corresponding to the items on Forms N-4 and N-5 will be used to record components and to compute the cost of practices needed to meet problems listed. Instructions for using these worksheets are attached to them. Amounts of practices needed will be obtained from Form N-3 for use on worksheets. The acreage by conservation problems and total cost of applying all needed practices will be transferred from the worksheet to Forms N-4 and N-5 in columns b and c respectively.

Per unit costs for items necessary for each practice will be estimated by the county committee on the basis of 1956 costs and experience regardless of the year in which the estimates are made.

E. Transmittal, Review and Clearance of the Inventory

1. Transmittal to the State Committee. Upon completion of the county inventory the county committee will transmit the number of copies required by the State plan of tables and prescribed worksheets (N forms) to the State committee.

The transmittal letter will indicate the date of approval by the county committee, the members of the committee present and any other pertinent information regarding the county inventory that will assist the State committee in its review.

2. State Committee Review. The chairman of the State committee will distribute copies to each agency represented on the State committee for official review and clearance. Each agency will review the county inventory and present its comments, if any, for consideration by the State committee.

The State committee will review the inventory for each county together with any appropriate agency comments. If the Inventory appears to be satisfactory the State committee will notify the county committee that it has been accepted, pending acceptance of the State report by the Department committee. If the State committee decides that the data in a county inventory are not comparable to those from similar areas, or that for any other reason some parts of the data are questionable, the Inventory will be returned to the county committee for revision of the



parts in question, with an explanation of the reasons for not accepting it. The State committee should be alert to identify similar areas within the State and, where possible, county committees should be encouraged to consult with one another.

After considering these comments, the county committee will make any adjustments considered appropriate in the Inventory. The required number of copies of the revised tables and worksheets will be returned to the State committee.

3. Transmittal to the Department Committee. The State committee will submit Inventory summaries as instructed. The Department committee will review data to insure comparability of the needs and costs between similar areas in the Nation and territories. In items in the State and territorial summaries that appear to be not in harmony with what is considered to be reasonable, the State committee will be requested to furnish information to justify the estimates submitted or to submit revised data.

### III. DEFINITIONS, PRACTICE TERMS, FORMS AND WORKSHEETS

In order that reasonable uniformity may be achieved in the development of data that will comprise county, state and national inventories, it is important that the same definitions, terms and methods of tabulation be used in all counties. The following pages list the definitions, practice terms, forms and worksheets that will be used in all counties. Adaptations that may be prescribed or permitted by the State Committee in its State Plan of Operations are as follows:

- A. Definitions. No change is to be made in definitions. However, any of the land uses may be further subdivided in order to obtain subtotals of particular land uses important to the county if data are available to obtain such subtotals and if provision is made for obtaining the total of such land uses for county and state summaries.
- B. Master List of Conservation Practices. The State Committee will compile a "State List of Conservation Practices" for use in the counties by omitting from the Master List practices that are not applicable to any county in the state. No changes are to be made in the language for any of the practices included. The State Committee may include other practices to meet special conservation problems which are not included in the National List, provided such practices are not adaptations of practices of the same general nature as included in the National List.
- C. Forms. Form N-1 "Present and Adjusted Uses of Land by Ownership" will be used in all counties without change.

Form N-2 "Present Land Use and Estimated Adjustments" will be used, for all county and state summaries for the Inventory, without change. However, State Committees may prepare similar forms for use in accumulation of data with sufficient columns and lines to permit subdivision of land uses described under A above.

Form N-3 "Estimates of Needed Conservation Practices" will be used in all counties without change.

Forms N-4, N-5, N-6, "Summaries of Costs by Groups of Conservation Problems" will be used in all counties without change.

- D. Worksheets for Estimating Practice Costs will be used in all counties. Instructions for the use of each worksheet are printed on the back of the form.

A. Definitions

1. Total land area (Do not confuse with "land in farms"). Includes all land not permanently covered by water as shown by the 1954 Census of Agriculture. For further details see definitions contained in the Bureau of the Census report "Areas of the United States, 1940."

(AREAS CLASSIFIED IN 2 THROUGH 6 WILL NOT BE DUPLICATED UNDER THESE DEFINITIONS)

2. Cropland. Includes land currently tilled including cropland harvested, crop failure, summer fallow, idle cropland, cropland in cover crops or soil improvement crops not harvested or pastured, rotation pasture, cropland being prepared for crops or newly seeded crops. Cropland includes all tame hay in all areas and wild hay in areas east of the Mississippi River. It in includes all agricultural land in vegetables, fruits and nuts including those grown on farms for home use.
3. Pasture and Range. Includes land in grass or other forage growth that is used primarily for grazing. Pasture and range includes grassland, non-forested pasture and other grazing land with the exception of rotation pasture. It may contain shade trees, scattered timber trees less than 10 percent stocked and occasional spots of brush; but the principal plant cover is such as to identify its use primarily as permanent grazing land. Wild hay is included in this category west of the Mississippi River.
4. Forest. Includes (a) lands which are at least 10 percent stocked by forest trees of any size and capable of producing timber or other wood products; (b) lands from which the trees described in (a) have been removed to less than 10 percent stocking and which are not now used for grazing or which have not been developed for other use; (c) afforested (planted) areas; and (d) chaparral areas.
5. Idle and other. Includes lands not classified under items 2, 3, 4, and 6.
6. Miscellaneous land for which needs for conservation measures are not to be determined. Includes urban areas, towns, villages, industrial sites and other built-up areas, highway surfaces, railroad beds, golf courses, rural airports and cemeteries. For purposes of identification in the Inventory, miscellaneous land is considered a form of ownership.



7. Ownerships. For purposes of the Inventory the total land area will be separated as follows: (The sum of these acreages will equal the total land area)
  - a. Land in farms (See Census definitions)
  - b. Privately owned land not in farms
  - c. State, county and municipally owned land not in farms
  - d. Federally owned land not in farms
  - e. Miscellaneous land
8. Land Capability Unit. A group of soils that are nearly alike in potential for agricultural use, plant growth and responses to similar treatment or management.

PRESENT AND ADJUSTED USES OF LAND BY OWNERSHIP

County \_\_\_\_\_

State \_\_\_\_\_

TOTAL LAND AREA  
OF THE COUNTY

Column c approved by \_\_\_\_\_

(for State Committee)

Date \_\_\_\_\_

Land Classification	Present Acreage		Acreage Adjusted for expected change in land use (Acres)
	Preliminary	Revised	
A. LAND IN FARMS	<input type="text"/>	<input type="text"/>	<input type="text"/>
1. Cropland			
2. Pasture and range			
3. Forest			
4. Idle and other			
B. PRIVATELY-OWNED LAND NOT IN FARMS	<input type="text"/>	<input type="text"/>	<input type="text"/>
5. Pasture and range			
6. Forest			
7. Idle and other			
C. STATE, COUNTY AND MUNICIPAL LAND NOT IN FARMS	<input type="text"/>	<input type="text"/>	<input type="text"/>
8. Pasture and range			
9. Forest			
10. Idle and other			
D. FEDERAL-OWNED LAND NOT <u>1/</u> IN FARMS	<input type="text"/>	<input type="text"/>	<input type="text"/>
11. Pasture and range			
12. Forest			
13. Idle and other			
E. MISCELLANEOUS LAND (on which needs will not be estimated)	<input type="text"/>	<input type="text"/>	<input type="text"/>

1/ Due to multiple use policy on all Federal lands, the land use classes following represent the present predominant use.



PRESENT LAND USE AND ESTIMATED ADJUSTMENTS

*Land Inventory*  
Ownership

Land Capability Unit (List one in each block; Give brief description)	Land Use	Present Land Use and Adjustments (acres)				Adjusted acreage Totals
		Crop- land	Pasture and Range	Forest	Idle and Other	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
	A. PRESENT LAND USE					
	B. ADJUSTED TO:					
	1. Cropland					
	2. Pasture and Range					
	3. Forest					
	4. Idle and Other					
	5. Miscellaneous					
	A. PRESENT LAND USE	5000	2000	7000	1000	15000
	B. ADJUSTED TO:					
	1. Cropland	3500	400	300		4200
	2. Pasture and Range	700	1000	300		3000
	3. Forest	200	500	6000	400	7400
	4. Idle and Other				500	500
	5. Miscellaneous	300	100	400	100	900

*Example*  
*DES*  
*Deep, well drained*  
*monotony, silty brown*  
*moderately sloping*

## Date \_\_\_\_\_

Land Use \_\_\_\_\_  
By Ownership \_\_\_\_\_

[illegible]

## Instructions for Use of Form N-4

### "Summary of Costs of Types of Problems"

Form N-4 will be used for summarizing cost data for LAND IN FARMS and PRIVATELY-OWNED LAND NOT IN FARMS. Items in Column (a) are groups of practices for which cost estimates are to be summarized.

Source of entries:

#### 1. Column B

- (a) Boxes opposite A, B, C, D and E - from entries in Column (d) Form N-1.
- (b) Boxes opposite Class I and Classes II through \_\_\_\_ (the highest numerical class in cropland). From summary on Form N-2.
- (c) Items 11, 20 and 26 from summary on Form N-3.
- (d) Other items - From worksheets.

#### 2. Column (c)

- (a) Items 1 through 32 - from worksheets
- (b) Boxes - by adding the line items immediately below them. A is sum of boxes B, C, D and E. B is sum of boxes opposite Class I and Classes II through \_\_\_\_.

#### 3. Column (d)

- (a) All line items - directly from worksheets.
- (b) All box items - box entry Column (c) divided by box entry Column (b).

#### 4. Worksheets

Worksheets are provided to summarize costs of practices included in each practice group. Each worksheet will be coded to the line numbers on Form N-4 for which they will be used. Instructions for the use of each worksheet accompanies it.

Note: Only sample worksheets are included in this preliminary draft. A complete set will be furnished.

Worksheets and the items they cover are as follows:

Vegetative cover practices which appear on lines 1, 2, 3, 4 and 13.  
Erosion control practices - lines 5, 16 and 27.  
Drainage practices - lines 6 and 17.  
Efficient use of irrigation - lines 7 and 18.  
Proper use and management of range - line 12.



Instructions for Form N-4, cont.

Control of competitive plants, disease, and pests - line 14.

Facilities for preserving cover - line 15.

Forest practices - lines 20 through 25. (No instructions are included for forest worksheets.)

Other practices and Removal of Hazards - lines 9, 10, 19, 28, 29 and 32.

Stream Improvement - line 30.

Wildlife - line 31.

Code numbers:

Letters and numbers in parenthesis will be noted in Column (a) of Form N-4 - Disregard them.

These are for a future summary of practice costs by annual (A), recurring (R) and enduring (E) types of practices. The 1, 2, 3, etc. refer to the practice.

SUMMARY OF COSTS BY TYPES OF PROBLEMS

County \_\_\_\_\_

State \_\_\_\_\_

Practice groups by Land Use and Types of Problems	Acres	Cost	
		Total	Av.Per Acre
(a)	(b)	\$ (c)	(d)
A. TOTAL LAND IN FARMS AND PRIVATELY-OWNED LAND NOT IN FARMS			
B. CROPLAND			
Class I Land			
1. Cover for fertility maintenance (A-1)			
2. Rotation for fertility maintenance (R-1)			
Classes II through			
3. Cover and green manure (A-1)			
4. Conservation rotation (R-1)			
5. Erosion Control (E-1)			
6. Drainage (E-2)			
7. Efficient use of irrigation (E-3)			
8.			
9.			
10.			
C. PASTURE AND RANGE			
11. No conservation practices needed		xxx	xxx
12. Proper use and management (A-2)			
13. Revegetation (R-2)			
14. Control of comp. plants, disease & pests (R-3)			
15. Facilities for Preserving cover (E-4)			
16. Erosion control (E-1)			
17. Drainage (E-2)			
18. Efficient use of irrigation (E-3)			
19.			
D. FOREST			
20. No conservation practices needed		xxx	xxx
21. Stand improvement (R-4)			
22. Strengthened protection (R-5)			
23. Erosion control (R-6)			
24. Planting or improvement of natural stocking (R-7)			
25. Naval Stores Conservation Practices (R-8)			
E. IDLE AND OTHER			
26. No conservation practices needed		xxx	xxx
27. Erosion control (E-1)			
28. Removal of hazards (E-4)			
29.			
F. RELATED TO MULTIPLE LAND USE	xxx		xxx
30. Stream improvement (E-5)	xxx		xxx
31. Wildlife (R-9)			
32.			

Date \_\_\_\_\_





